

L158,761



## PATENT SPECIFICATION

DRAWINGS ATTACHED

L158,761

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## COMPLETE SPECIFICATION

## Motor Vehicles

We, FORD MOTOR COMPANY LIMITED, of 88 Regent Street, London W.1, a British Company, do hereby declare the invention for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to motor vehicles and more particularly to the suspension and final drive arrangements of motor vehicles.

According to the present invention in a motor vehicle:

(a) two rear wheels are independently sprung and independently driven by two motors;

(b) each motor is mounted on the sprung mass of the vehicle and drives its associated wheel through a drive; and

(c) each wheel is mounted on one end of a half shaft which is rotatably supported in a casing carried by a semi-trailing arm pivotally connected to the spring mass and each motor drives its associated half shaft through the drive.

How the invention may be carried out will now be described with reference to the accompanying drawings in which:

Figure 1 is a half plan view of the rear suspension and final drive arrangement of a motor vehicle; and

Figure 2 is a partial side view of Figure 1.

A motor vehicle has two rear wheels 1 (only one shown) which are driven independently by two electric motors 2 (only one shown) through two flexible drives (only one shown).

Each wheel 1 is mounted on the outer end of a half-shaft 3 which is rotatably supported in a tubular casing 4 by bearings 5 and 6. The casing 4 is carried by a semi-trailing arm 7 pivotally connected to the sprung mass 8 of the vehicle to pivot about an axis X—X. The electric motors 2 are bolted to the sprung mass 8.

[Price 4s. 6d.]

The flexible drive from the electric motor 2 to the associated half-shaft 3 is by two belts 9 and 10.

The electric motor 2 drives directly a first V-pulley 11 which drives a second V-pulley 12 through the belt 9. The second V-pulley 12 is secured to one end of a shaft 13 which is rotatably supported by two bearings 14 in an extension 15 of the casing 4. The pivot axis X—X of the semi-trailing arm 7 intersects the axis of rotation of the second V-pulley 12.

A third flat pulley 16 is secured to the other end of the shaft 13 to be coaxial with and driven by the second pulley 12, and in turn drives a fourth pulley 17 secured to the inner end of the half-shaft 3 through the flat belt 10.

The semi-trailing arm 7, casing 4 and extension 15, half-shaft 3, wheel 1, and the pulleys 12, 16 and 17 thus pivot as a unit about the axis X—X during suspension movements. The springing medium of the suspension comprises a cylindrical rubber torsion spring (not shown) which is located concentrically around the pivot axis X—X.

The suspension and final drive arrangement of the other rear wheel (not shown) is the same as that shown and described.

Chains could be used instead of belts as the flexible drive, in which case the pulleys 11, 12, 16 and 17 would be replaced by sprockets.

## WHAT WE CLAIM IS:—

1. A motor vehicle in which:

(a) two rear wheels are independently sprung and independently driven by two motors;

(b) each motor is mounted on the sprung mass of the vehicle and drives its associated wheel through a drive; and

(c) each wheel is mounted on one end of a half shaft which is rotatably supported in a casing carried by a semi-trailing arm pivotally connected to the sprung mass and each mo-

tor drives its associated half shaft through the drive.

2. A motor vehicle as claimed in claim 1 in which:

5 (a) each motor drives directly a first pulley or sprocket which in turn drives a second pulley or sprocket through a first endless band;

10 (b) the second pulley or sprocket is carried by the associated casing and its axis of rotation intersects the pivot axis of the associated semi-trailing arm; and

(c) the second pulley or sprocket drives the half shaft through a second endless band.

15 3. A motor vehicle as claimed in claim 2 in which each second pulley or sprocket drives a third pulley or sprocket which is coaxial with it and the third pulley or sprocket drives the associated half shaft through the second endless band.

20 4. A motor vehicle as claimed in either

claim 2 or 3 in which in the case of the use of pulleys the endless bands comprise belts and in the case of the use of sprockets the endless bands comprise chains.

25 5. A motor vehicle as claimed in any one of claims 1 to 4 in which two rubber torsion springs are located concentrically around the two pivot axes of the two semi-trailing arms respectively to form the springing medium of the suspension.

30 6. A motor vehicle as claimed in any previous claim in which the two motors are electric motors.

35 7. A motor vehicle as claimed in claim 1 and having the final drive and suspension arrangement shown in and described with reference to the accompanying drawings.

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